

### Claims

1. A method of selecting carriers to be measured by a subscriber unit served by a  
5 cellular communication system and operable to measure carriers in a frequency band, the method comprising the steps of  
determining a measuring performance characteristic of the subscriber unit related to the measurement performance of the subscriber unit when measuring carriers in the frequency band; and  
10 selecting a subset of carriers in the frequency band to be measured by the subscriber unit in response to the measuring performance characteristic.
2. A method of selecting carriers as claimed in claim 1 further comprising the step  
of transmitting identification of the subset of carriers to the subscriber unit.  
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3. A method of selecting carriers as claimed in claim 1 or 2 further comprising the  
step of the subscriber unit measuring the carriers of the subset of carriers.
4. A method of selecting carriers as claimed in any of the claims 1 to 3 wherein the  
20 measuring performance characteristic is indicative of the time required for the subscriber unit to measure carriers in the frequency band.
5. A method of selecting carriers as claimed in any of the claims 1 to 4 wherein the  
measuring performance characteristic is indicative of the number of receivers in the  
25 subscriber unit.
6. A method of selecting carriers as claimed in any of the claims 1 to 5 wherein the  
frequency band is a frequency band of a second communication system.

7. A method of selecting carriers as claimed in any of the claims 1 to 6 wherein the cellular communication system and the second communication system use different radio access technologies.
- 5 8. A method of selecting carriers as claimed in claim 7 wherein the cellular communication system is a GSM communication system and the second communication system is a UMTS communication system.
9. A method of selecting carriers as claimed in claim 7 wherein the cellular  
10 communication system is a UMTS communication system and the second communication system is a GSM communication system.
10. A method of selecting carriers as claimed in any of the claims 8 or 9 wherein the  
15 measuring performance characteristic is determined from a subscriber unit capability report indicating if compressed mode is required to perform measurements on the GSM communication system.
11. A method of selecting carriers as claimed in any of the claims 1 to 10 wherein the  
20 size of the subset of carriers is dependent on the performance characteristic.
12. A method of selecting carriers as claimed in any of the claims 1 to 11 wherein the subset of carriers is an ordered subset of carriers and the order of carriers in the subset of carriers is dependent on the performance characteristic.
- 25 13. A method of selecting carriers as claimed in any of the claims 1 to 12 further comprising the step of determining a handover candidate carrier from the subset of carriers.
14. A method of selecting carriers as claimed in any of the claims 1 to 13 wherein the  
30 measuring performance characteristic is determined from the number of measurement reports reported from the subscriber unit within a given time interval.

15. An apparatus for selecting carriers to be measured by a subscriber unit served by a cellular communication system and operable to measure carriers in a frequency band, the method comprising:

5 means for determining a measuring performance characteristic of the subscriber unit related to the measurement performance of the subscriber unit when measuring carriers in the frequency band; and

means for selecting a subset of carriers in the frequency band to be measured by the subscriber unit in response to the measuring performance characteristic.

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16. An apparatus as claimed in claim 15 further comprising means for transmitting identification of the subset of carriers to the subscriber unit.

17. An apparatus as claimed in any of the claims 15 to 16 wherein the measuring  
15 performance characteristic is indicative of the time required for the subscriber unit to measure carriers in the frequency band.

18. An apparatus as claimed in any of the claims 15 to 17 wherein the measuring  
performance characteristic is indicative of the number of receivers in the subscriber unit.

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19. An apparatus as claimed in any of the claims 15 to 18 wherein the frequency  
band is a frequency band of a second communication system.

20. An apparatus as claimed in claim 19 wherein the cellular communication system  
25 and the second communication system use different radio access technologies.

21. An apparatus as claimed in claim 20 wherein the cellular communication system  
is a GSM communication system and the second communication system is a UMTS  
communication system.

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22. An apparatus as claimed in claim 20 wherein the cellular communication system is a UMTS communication system and the second communication system is a GSM communication system.

5 23. An apparatus as claimed in any of the claims 21 or 22 wherein the means for determining a measuring performance characteristic is operable to determine the measuring performance characteristic from a subscriber unit capability report indicating if compressed mode is required to perform measurements on the GSM communication system.

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24. An apparatus as claimed in any of the claims 15 to 23 further comprising means for determining a handover candidate carrier from the subset of carriers.

15 25. An apparatus as claimed in any of the claims 15 to 24 wherein the means for determining a measuring performance characteristic is operable to determine the measuring performance characteristic from the number of measurement reports reported from the subscriber unit within a given time interval.

20 26. A cellular communication system comprising the apparatus of any of the preceding claims 15 to 25.

27. A subscriber unit operable to be served by a cellular communication system and to measure carriers in a frequency band, the subscriber unit comprising:

25 means for determining a measuring performance characteristic of the subscriber unit related to the measurement performance of the subscriber unit when measuring carriers in the frequency band; and

means for selecting a subset of carriers in the frequency band to be measured by the subscriber unit in response to the measuring performance characteristic; and

means for measuring the carriers of the subset of carriers.

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28. A subscriber unit as claimed in claim 27 wherein the measuring performance characteristic is indicative of the time required for the subscriber unit to measure carriers in the frequency band.

5 29. A subscriber unit as claimed in any of the claims 27 to 28 wherein the measuring performance characteristic is indicative of the number of receivers in the subscriber unit.

30. A subscriber unit as claimed in any of the claims 27 to 29 wherein the frequency band is a frequency band of a second communication system.

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31. A subscriber unit as claimed in any of the claims 27 to 30 wherein the cellular communication system and the second communication system use different radio access technologies.

15 32. A subscriber unit as claimed in claim 31 wherein the cellular communication system is a GSM communication system and the second communication system is a UMTS communication system.

33. A subscriber unit as claimed in any claim 31 wherein the cellular communication  
20 system is a UMTS communication system and the second communication system is a GSM communication system.

34. A subscriber unit as claimed in any of the claims 27 to 33 further comprising means for determining a handover candidate carrier from the subset of carriers.

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